

**WHAT IS CLAIMED IS:**

1. A method of supporting a network layer protocol in a network element of a  
2 wireless communication network, comprising:  
receiving, by the network element, a first packet of a receive packet stream;  
4 ascertaining whether the first packet conforms to a first predetermined network  
layer protocol; and  
6 forwarding, at least in part in response to ascertaining that the first packet  
conforms to the first predetermined protocol, at least a portion of the first packet to a  
8 router, the router being configured to support the first predetermined protocol.
2. The method of claim 1, wherein the ascertaining involves examining a  
2 protocol identifier encapsulated within the first packet, the protocol identifier uniquely  
identifying a protocol to which the first packet conforms.
3. The method of claim 1, wherein the entire first packet is forwarded to the  
2 router.
4. The method of claim 1, wherein less than the entire first packet is forwarded  
2 to the router.
5. The method of claim 1, further comprising processing the first packet after  
2 the ascertaining and before the forwarding.
6. The method of claim 5, wherein the processing includes applying a  
2 decompression process to the first packet.

7. The method of claim 6, wherein the decompression process is applied in  
2 accordance with an Internet Protocol version 4 (IPv4) Van Jacobson decompression  
process.

8. The method of claim 6, wherein the decompression process is applied in  
2 accordance with an Internet Protocol version 6 (IPv6) decompression process.

9. The method of claim 1, wherein the receive packet stream comprises a Point-  
2 to-Point Protocol (PPP) stream.

10. The method of claim 1, wherein the network element includes substantially  
2 no native support for the first predetermined protocol.

11. The method of claim 1, wherein the network element includes one of  
2 compression support and decompression support for the first predetermined protocol.

12. The method of claim 1, wherein the network element is configured to  
2 natively support a second predetermined protocol.

13. The method of claim 12, wherein the second predetermined protocol  
2 comprises one of Internet Protocol, Version 4 (IPv4) and Internet Protocol, Version 6  
(IPv6).

14. The method of claim 1, wherein the network element comprises a packet  
2 data serving node (PDSN).

15. The method of claim 1, wherein the receive packet stream originates at a  
2 terminal device, the terminal device comprising one of a mobile station and a personal  
computer (PC).

16. The method of claim 1, further comprising:  
2 receiving, by the network element, a second packet forwarded by the router;  
ascertaining whether the second packet conforms to the first predetermined  
4 network layer protocol; and  
transmitting, in response to ascertaining that the second packet conforms to the  
6 first predetermined protocol, at least a portion of the second packet in a transmit packet  
stream.

17. The method of claim 16, wherein ascertaining whether the second packet  
2 conforms to the first predetermined network layer protocol involves routing the  
received second packet to a corresponding instance in the network element.

18. The method of claim 16, wherein the transmit packet stream is broadcast to  
2 a terminal device, the terminal device comprising one of a mobile station and a  
personal computer (PC).

19. A network element for supporting a network layer protocol in a wireless  
2 communication network, comprising:  
a first receiver to receive a first packet of a receive packet stream;

4 a demultiplexer operatively coupled to the first receiver and configured to  
ascertain whether the first packet conforms to a first predetermined network layer  
6 protocol; and  
a forwarding mechanism operatively coupled to the demultiplexer and  
8 configured to forward, at least in part in response to the demultiplexer ascertaining that  
the first packet conforms to the first predetermined protocol, at least a portion of the  
10 first packet to a router, the router being configured to support the first predetermined  
protocol.

20. The network element of claim 19, further comprising a processing  
2 mechanism operatively coupled to the demultiplexer and the forwarding mechanism,  
the processing mechanism being configured to process the first packet after the  
4 ascertaining and before the forwarding.

21. The network element of claim 19, wherein the processing mechanism is  
2 configured to apply a decompression process to the first packet.

22. The network element of claim 19, further comprising:  
2 a second receiver to receive, by the network element, a second packet  
transmitted by the router;  
4 a multiplexer operatively coupled to the second receiver and configured to  
ascertain whether the second packet conforms to the first predetermined network layer  
6 protocol; and

a transmitter operatively coupled to the multiplexer and configured to forward,  
8 in response to ascertaining that the second packet conforms to the first predetermined  
protocol, at least a portion of the second packet in a transmit packet stream.

23. The network element of claim 22, further comprising a second processing  
2 mechanism operatively coupled to the second receiver and the multiplexer, the second  
processing mechanism being configured to process the second packet after the  
4 receiving by the second receiver and before the ascertaining by the multiplexer.

24. The network element of claim 23, wherein the second processing  
2 mechanism is configured to apply a compression process to the second packet.

25. The network element of claim 19, wherein the network element includes  
2 substantially no native support for the first predetermined protocol.

26. The network element of claim 19, wherein the network element is  
2 configured to natively support a second predetermined protocol.

27. The network element of claim 26, wherein the second predetermined  
2 protocol comprises one of Internet Protocol, Version 4 (IPv4) and Internet Protocol,  
Version 6 (IPv6).

28. A computer-readable medium encoded with a plurality of processor-  
2 executable instructions for:

receiving, by a network element, a first packet of a receive packet stream;

- 4           ascertaining whether the first packet conforms to a first predetermined network  
layer protocol; and
- 6           forwarding, at least in part in response to ascertaining that the first packet  
conforms to the first predetermined protocol, at least a portion of the first packet to a
- 8           router, the router being configured to support the first predetermined protocol.

29. The computer-readable medium of claim 28, wherein the ascertaining
- 2           comprises examining a protocol identifier encapsulated within the first packet, the  
protocol identifier uniquely identifying a protocol to which the first packet conforms.

30. The computer-readable medium of claim 28, further comprising processor-
- 2           executable instructions for:
- receiving, by the network element, a second packet forwarded by the router;
- 4           ascertaining whether the second packet conforms to the first predetermined  
network layer protocol; and
- 6           transmitting, in response to ascertaining that the second packet conforms to the  
first predetermined protocol, at least a portion of the second packet in a transmit packet
- 8           stream.